

# FALL PROTECTION WORK PLAN REQUIREMENTS

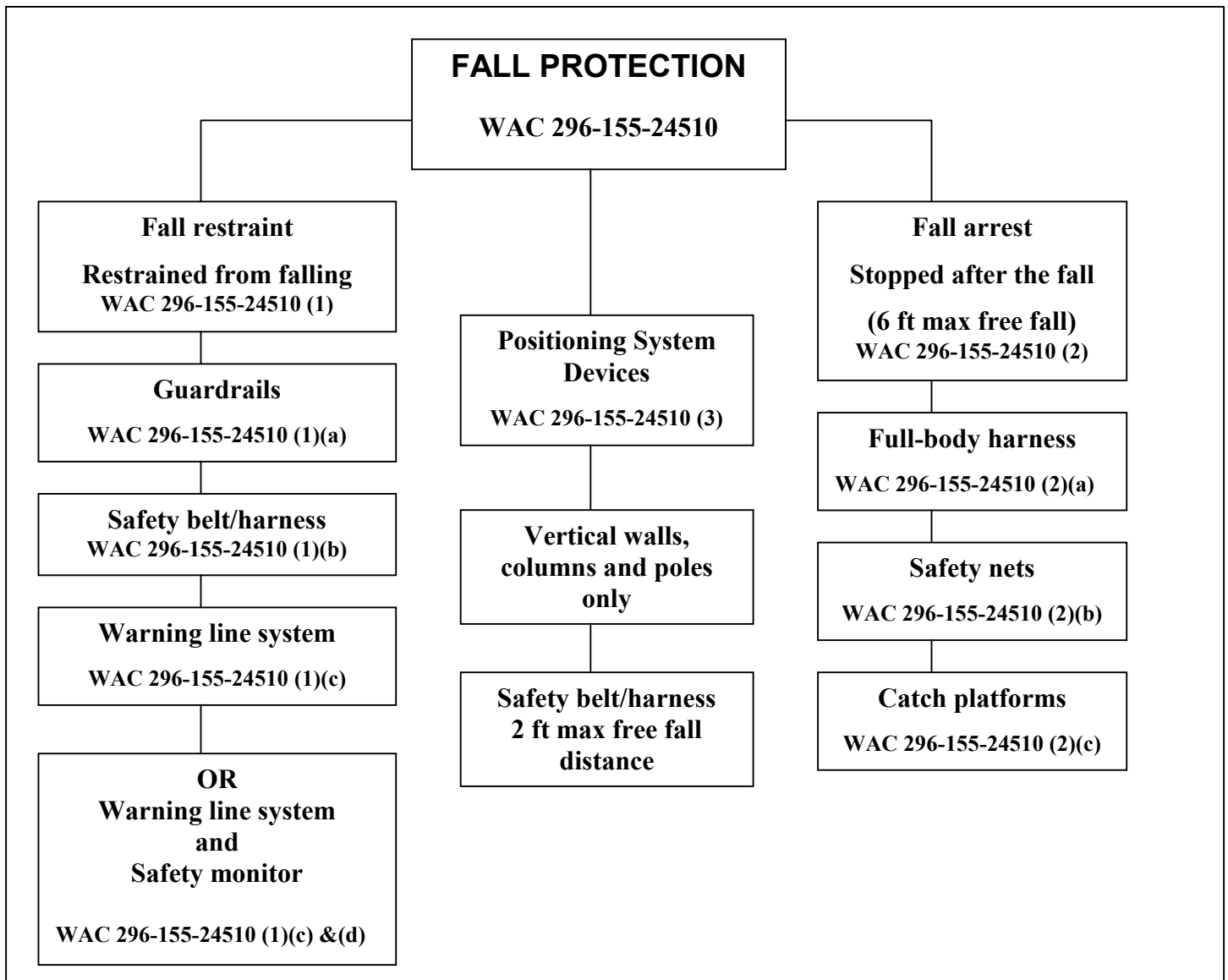
## WISHA SERVICES

*A Mission to Accomplish*

- **Save Lives.**
- **Prevent Injuries and Illnesses.**
- **Protect the Safety and Health of Washington's Workers**



2-00 Edition



## Requirements of a fall protection work plan

Falls from elevated work surfaces continue to produce injuries and death to workers at a high rate.

In one year alone, five deaths within the construction industry were caused by falls.

Through the Washington Industrial Safety and Health Act (WISHA), the Department of Labor and Industries developed a comprehensive safety standard WAC 296-155-245 Part C-1, that became effective February, 1997 to address fall hazards.

This standard requires a written fall protection plan to be developed and maintained on the job site. The plan must describe how the employer will

protect employees on a given work site when they are working 10 feet or more above the ground, other work surfaces, or water.

The six primary elements to be included in the plan are as follows:

- ✓ Identify all fall hazards in the work area.
- ✓ Describe the method of fall arrest or fall restraint to be provided.

- ✓ Describe the correct procedures for the assembly, maintenance, inspection and disassembly of the fall protection system to be used.
- ✓ Describe the method of providing overhead protection for workers who may be in, or pass through, the area below the work site.
- ✓ Describe the method for prompt, safe removal of injured workers.

## Definitions

Definitions are included on the first page of the standard (WAC 296-155-24503) A copy of which is included as Appendix 1 to this document.

Two of the most important definitions you will need to understand before an effective plan can be developed are summarized below.

**Fall arrest system** - Equipment used to protect a person from falling more than six feet or from striking a lower object in the event of a fall, whichever distance is less.

This equipment includes Class III approved full-body harnesses and lanyards properly secured to anchorage points or to lifelines; or safety nets, or catch platforms.

**Fall restraint system** - Equipment used to keep a person from reaching a fall point (e.g., able to work up to the edge of a roof but not fall).

This equipment includes standard guardrails, warning line system, warning line and monitor system, or approved safety belts (or harnesses) and lanyards attached to secure anchorage points;

## Developing a Fall Protection Work Plan

### 1

**Identify your company and the work site to which the plan applies.**

This information should be listed as the first item in your plan.

### 2

**Identify all fall hazards in the work area.**

All jobs and tasks to be done must be reviewed to make this determination. Sheeting the trusses for a roof, building forms for a highway overpass, replacing skylights, or building the top deck of a building are some examples of fall hazards.

After all fall hazards have been identified, list those requiring employees to work 10 feet or more above the ground, other work surface, or water.

See the appendix to Part C-1 (WAC 296-155-24525) for a list of specific safety codes that require the use of fall protection equipment. These are in addition to the general requirements contained in Part C-1, WAC 296-155-245.

### 3

**Determine the method of fall arrest or fall restraint to be provided for each job and task to be done that is 10 feet or more above the ground, other work surface, or water.**

You might decide to use top plate bracket scaffolds for starting the roof sheeting along with a fall arrest system to finish, and full-body harness with lanyard secured to an anchorage point for building forms for a highway overpass or replacing skylights.

Building the top deck of a building might best be done by using different kinds of fall protection, such as fall restraint for those working away from the leading edge and fall arrest for those working near the edge of the unprotected deck.

If a safety monitor system is used, you must use special care to ensure full compliance with WAC 296-155-24521.

# 4

## **Describe the procedures for assembly, maintenance, inspection and disassembly of the fall protection system to be used.**

Examples of how this requirement might appear on the document are as follows:

### **For roof sheeting**

Roof trusses can be rolled, with lifelines attached to anchorages previously installed, from a top plate bracket scaffold built along the inside wall to eliminate a fall to the outside. Trusses once bridged and braced can then be sheeted.

The sheeting will be started from the bracket scaffold, generally two rows, which adds shear strength and a surface for the employee to work from. Before getting onto the sheeted area the worker will put on a full body harness with a shock absorbing lanyard and attach to the lifeline. The employee will keep the length adjusted as work progress to ensure that the free fall distance will not exceed 6'.

### **For skylight replacement**

Fall arrest equipment, including approved full-body type III harness, lanyards and horizontal lifelines attached to \_\_ (anchorage) \_\_ will be used for replacing skylights. Employees will put the equipment on before climbing to the roof. If permanent anchors have not been installed, the \_\_ (type) \_\_ anchors will be installed \_\_ (how & where) \_\_ (to the 6<sup>th</sup> truss in from the gable ends, 20' from the north end of the house, etc) according to manufactures requirements.

The 3/4" synthetic lifeline will be connected to the anchor and employees will snap onto the lifeline immediately after connecting it and any time thereafter when on the roof.

The employee using it each day before putting it on will inspect all equipment. The inspection will include checking for damage, wear and mildew. Any defective equipment will be taken to the job shack for evaluation by the job supervisor and turned in for repair or destroyed, as appropriate.

### **For building the top deck**

The deck will be started on the NW corner working east. The first two rows will be installed using a JLG. (Reminder that full body harness and shock absorbing lanyards attached to the anchor in the lift is required as per company policy).

A warning line safety monitor system will be used as the deck progress to the south. \_\_\_\_ (name) \_\_\_\_ will be the safety monitor. The warning line will be erected with a designated access. The line on the south will move as work progresses and the area south of the warning line will be designated as the control zone. All employees in this zone will wear high vis vests with the monitors' having a large M to designate clearly who is the monitor. No employees are to enter the control zone without the high vis vest on or in an area where the monitor does not have full view and control.

(List procedures and equipment to be used for other jobs or tasks.)

# 5

## **Describe the correct procedures for handling, storage and security of tools and materials.**

Some examples follow:

All fall protection equipment will be kept in a designated place or in the job equipment shack. It will be picked up from the shack at the start of each workday by each employee using the equipment and returned after the shift is over. Employees will advise the job supervisor of any damage to the equipment.

Materials will be kept back 6' from the edge of the Sheeting material will be placed on the 2<sup>nd</sup> floor level prior to rolling the trusses and handed up one at a time to the worker installing the sheeting or will be raised to a material platform (dog leg brackets for a level surface on the roof) by crane and sling.

Tools will be secured as follows:

- ✓ Tool belts will be used to carry hand tools to the elevated work surface.
- ✓ Tools too large for the tool belt will be raised by rope and pulley.
- ✓ When hand tools are used, they will be returned to the tool belt immediately after use.
- ✓ Large tools, such as skill saws, will be secured. Or placed in an area that will not allow them to fall.

## 6

**Describe the method of providing overhead protection for workers who may be in, or pass through, the area below the work site.**

Could be one or more of the following:

- ✓ Hard hats are required on all jobsites.
- ✓ Warning signs will be posted to caution of existing hazards whenever they are present.
- ✓ The area under the material handling areas of the roof will have a warning line installed at a distance at least as great as the height of the building and a minimum of 8' on either side to prevent workers from accidentally walking into the hazard area.
- ✓ Debris nets will be used.
- ✓ Toe boards shall be installed on all walkways and decks where workers may be below. Screens will be installed between the toe board and the mid-rail at all locations where employees work below or if conditions warrant .

## 7

**Describe the method for prompt, safe removal of injured workers.**

An example of this requirement might be as follows:

If a decking crew member is injured or in need of

first aid, the supervisor will evaluate the employee's condition and administer first aid as appropriate. If the employee's condition appears serious, the supervisor or other designated person will call "911" or other local emergency rescue unit to request assistance. If the worker has fallen and is suspended communication will be attempted to determine condition. If non-responsive the lift platform will be used to lower the injured person to ground level.

## 8

**Include where (on the job site) a copy of this plan will be posted (e.g., the job shack).**

## 9

**Train and instruct all personnel in all of the above items (equipment to use, how to use it, etc.).**

## 10

**Keep a record of employee training and maintain it on the job.**

# Appendix 1

## 296-155-24503 Definitions.

**“Anchorage”** means a secure point of attachment for lifelines, lanyards, or deceleration devices which is capable of withstanding the forces specified in the applicable sections of chapter 296-155 WAC.

**“Approved”** means, for the purpose of this section; tested and certified by the manufacturer, or any recognized national testing laboratory, to possess the strength requirements specified in this section.

**“Body belt”** means a Type 1 safety belt used in conjunction with lanyard or lifeline for fall restraint only.

**“Full body harness”** means a configuration of connected straps to distribute a fall arresting force over at least the thighs, shoulders and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration devices.

**“Full body harness system”** means a Class III full body harness and lanyard which is attached to an anchorage meeting the requirements of chapter 296-155 WAC, Part C-1; or attached to a horizontal or vertical lifeline which is properly secured to an anchorage(s) capable of withstanding the forces specified in the applicable sections of chapter 296-155 WAC.

**“Catenary line”** - see horizontal lifeline.

**“Competent person”** means an individual knowledgeable of fall protection equipment, including the manufacturers recommendations and instructions for the proper use, inspection, and maintenance; and who is capable of identifying existing and potential fall hazards; and who has the authority to take prompt corrective action to eliminate those hazards; and who is knowledgeable of the rules contained in this section regarding the erection, use, inspection, and maintenance of fall protection equipment and systems.

**“Connector”** means a device which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabiner, or it may be an integral component of part of the system (such as a buckle or dee ring sewn into a body belt or body harness, or a snap hook spliced or sewn to a lanyard or self-retracting lanyard).

**“Continuous fall protection”** means the design and use of a fall protection system such that no exposure to an elevated fall hazard occurs. This may require more than one fall protection system or a combination of prevention or protection measures.

**“Control zone”** means the area between the warning line and the unprotected sides and edges of the walking/working surface.

**“Deceleration device”** means any mechanism, such as a rope grab, ripstitch lanyard, specifically woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

**“Deceleration distance”** means the additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

**“Drop line”** means a vertical lifeline secured to an upper anchorage for the purpose of attaching a lanyard or device.

**“Failure”** means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

**“Fall arrest system”** means the use of multiple, approved safety equipment components such as; body harnesses, lanyards, deceleration devices, droplines, horizontal and/or vertical lifelines and anchorages, interconnected and rigged as to arrest a free fall. Compliance with anchorage strength requirements specified in the applicable sections of chapter 296-155 WAC, Part C-1 shall constitute approval of the anchorage.

**“Fall protection work plan”** means a written planning document in which the employer identifies all areas on the job site where a fall hazard of 10 feet or greater exists. The plan describes the method or methods of fall protection to be utilized to protect employees, and includes the procedures governing the installation use, inspection, and removal of the fall protection method or methods which are selected by the employer. (See WAC 296-155-24505.)

**“Fall restraint system”** means an approved device and any necessary components that function together to restrain an employee in such a manner as to prevent that employee from falling to a lower level. When standard guardrails are selected, compliance with applicable sections governing their construction and use shall constitute approval.

**“Fall distance”** means the actual distance from the workers support to the level where a fall would stop.

**“Free fall”** means the act of falling before a personal fall arrest system begins to apply force to arrest the fall.

**“Free fall distance”** means the vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

**“Hardware”** means snap hooks, D rings, bucklers, carabiners, adjusters, O rings, that are used to attach the components of a fall protection system together.

**“Horizontal lifeline”** means a rail, rope, wire, or synthetic cable that is installed in a horizontal plane between two anchorages and used for attachment of a workers lanyard or lifeline device while moving horizontally; used to control dangerous pendulum like swing falls.

**“Lanyard”** means a flexible line of webbing, rope, or cable used to secure a body belt or harness to a lifeline or an anchorage point usually 2, 4, or 6 feet long.

**“Leading edge”** means the advancing edge of a floor, roof, or formwork which changes location as additional floor, roof, or formwork sections are placed, formed, or constructed. Leading edges not actively under construction are considered to be "unprotected sides and edges, and positive methods of fall arrest or fall restraint shall be required to protect exposed workers.

**“Lifeline”** means a vertical line from a fixed anchorage or between two horizontal anchorages, independent of walking or working surfaces, to which a lanyard or device is secured. Lifeline as referred to in this text is one which is part of a fall protection system used as back-up safety for an elevated worker.

**“Locking snap hook”** means a connecting snap hook that requires two separate forces to open the gate; one to deactivate the gatekeeper and a second to depress and open the gate which automatically closes when released; used to minimize roll out or accidental disengagement.

**“Low pitched roof”** means a roof having a slope equal to or less than 4 in 12.

**“Mechanical equipment”** means all motor or human propelled wheeled equipment except for wheelbarrows, mopcars, robotic thermoplastic welders and robotic crimpers.

**“Positioning belt”** means a single or multiple strap that can be secured around the workers body to hold the user in a work position; for example, a linemans belt, a rebar belt, or saddle belt.

**“Positioning device system”** means a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

**“Restraint line”** means a line from a fixed anchorage or between two anchorages to which an employee is secured in such a way as to prevent the worker from falling to a lower level.

**“Roll out”** means unintentional disengagement of a snap hook caused by the gate being depressed under torque or contact while twisting or turning; a particular concern with single action snap hooks that do not have a locking gatekeeper.

**“Roof”** means the exterior surface on the top of a building. This does not include floors or form work which, because a building has not been completed, temporarily become the top surface of a building.

**“Roofing work”** means the hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.



**“Rope grab”** means a fall arrester that is designed to move up or down a lifeline suspended from a fixed overhead or horizontal anchorage point, or lifeline, to which the belt or harness is attached. In the event of a fall, the rope grab locks onto the lifeline rope through compression to arrest the fall. The use of a rope grab device is restricted for all restraint applications. (Refer to WAC 296-155-24510 (1)(b)(iii)).

**“Safety line”** - see lifeline.

**“Safety monitor system”** means a system of fall restraint used in conjunction with a warning line system only, where a competent person as defined by this part, having no additional duties, monitors the proximity of workers to the fall hazard when working between the warning line and the unprotected sides and edges including, the leading edge of a low pitched roof or walking/working surface.

**“Self retracting lifeline”** means a deceleration device which contains a drum wound line which may be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which after onset of a fall, automatically locks the drum and arrests the fall.

**“Shock absorbing lanyard”** means a flexible line of webbing, cable, or rope used to secure a body belt or harness to a lifeline or anchorage point that has an integral shock absorber.

**“Single action snap hook”** means a connecting snap hook that requires a single force to open the gate which automatically closes when released.

**“Snap hook”** means a self-closing connecting device with a gatekeeper latch or similar arrangement that will remain closed until manually opened. This includes single action snap hooks that open when the gatekeeper is depressed and double action snap hooks that require a second action on a gatekeeper before the gate can be opened.

**“Static line”** - see horizontal lifeline.

**“Strength member”** means any component of a fall protection system that could be subject to loading in the event of a fall.

**“Steep roof”** means a roof having a slope greater than 4 in 12.

**“Unprotected sides and edges”** means any side or edge (except at entrances to points of access) of a floor, roof, ramp or runway where there is no wall or guardrail system as defined in WAC 296-155-505(5).

**“Walking/working surface”** means for the purpose of this section, any area whose dimensions are 45 inches or greater in all directions, through which workers pass or conduct work.

**“Warning line system”** means a barrier erected on a walking and working surface or a low pitch roof (4 in 12 or less), to warn employees that they are approaching an unprotected fall hazard(s).

**“Work area”** means that portion of a walking/working surface where job duties are being performed.